

Appl. No. 09/611,037
Amtd. dated February 5, 2004
Reply to Office Action of November 5, 2003

REMARKS/ARGUMENT

Claims 14-21 and 33-40 are pending after entry of this Amendment.

Rejections under 35 USC §112

Claims 37-40 were rejected under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. According to the Office, the term "high aspect ratio" in claim 37 is a relative term which renders the claim indefinite. Applicants respectfully traverse this rejection and request reconsideration.

Applicants respectfully re-assert all previous argument. Applicants further note that Examiner has responded that, "Clearly, what constitutes a "high aspect ratio" has changed over the years with the further development of semiconductor technology and the meaning of this term may not be the same to different people having ordinary skill in the art. For this reason, the rejection is maintained." While Applicants appreciate Examiner's observation, it is respectfully pointed out that the present application is a continuation of an application filed on June 16, 1998. In the intervening five and one half years, the technology certainly has advanced, but in accordance with MPEP §2173.02, "Definiteness of claim language must be analyzed, not in a vacuum, but in light of: (A) The content of the particular application disclosure; (B) The teachings of the prior art; and (C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art *at the time the invention was made*" (emphasis supplied). Further, "The meaning of every term used in a claim should be apparent from the prior art or from the specification and drawings *at the time the application is filed*" (MPEP §2173.05(a), emphasis supplied). As Applicants have pointed out in a previous Amendment, prior art used as a reference by Examiner uses the very term "high aspect ratio" now rejected by Examiner.

Applicants respectfully submit that the term "high aspect ratio" is a term of art, known and understood by one of ordinary skill in the art, which does not render claims 37-40 indefinite. Applicants request that this rejection be withdrawn.

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Rejections under 35 USC §103

Claims 33-35, 37-38, and 40 were rejected under 35 USC §103(a) as being unpatentable over Tomita et al. in view of admitted prior art. Applicants respectfully traverse this rejection, and request reconsideration in light of the following argument.

Applicants respectfully re-submit all previous argument. As previously argued, Applicants submit the suggested modification of the reference, as well as the suggested combination of the prior art reference with "admitted prior art," fails to establish a *prima facie* case of obviousness. Of particular relevance, the combination and/or modification of the prior art fails to teach or suggest all the claim limitations as required (MPEP §2143). According to the Office, "inherently, the plasma sheath will form within the inlet openings 55 to form the second plasma sheath surface area since the openings have an opening diameter of 0.6mm" and further, that such inherency is supported by Applicants' specification at page 13, lines 22-24. As Applicants have argued, it is apparent that the Office has failed to understand the cited section of Applicants' specification. As Applicant Li clarified in the Declaration Under 37 CFR §1.132, "A diameter of 0.6mm does not inherently shift the plasma sheath into the openings and create a surface area next to the electrode that is larger than the surface area that is next to the wafer," and that "It is against common sense, basic plasma physics, and design rules for those skilled in the art -- that is, one of average competence and expertise in the field of plasma etch, would not modify the reference in such a manner as to increase size of the holes and purposely create plasma inside holes."

As Applicants have previously argued, inherency is simply not supported by the size of the holes in the electrode alone. According to MPEP §2112, "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic." Applicants further submit that the foundation and basic design taught by Tomita et al. is to *prevent* what the Office is asserting is inherent. A side by side comparison of the electrode features claimed by Applicants and those of the Tomita et al. reference perhaps better illustrate that what the Office is maintaining is without support in mechanical design and plasma physics:

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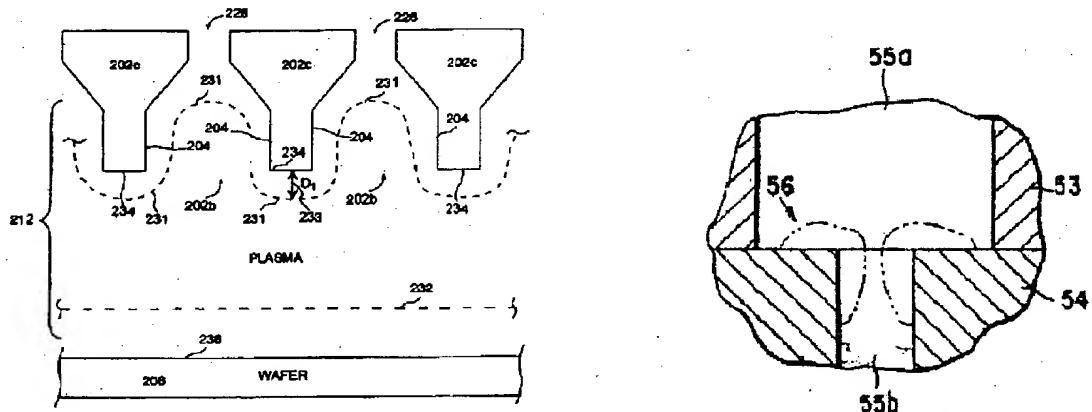
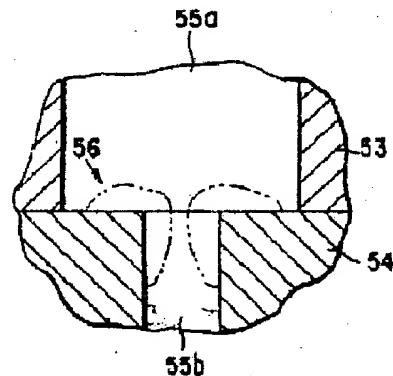


FIG. 2E



The figure (Fig. 2E) on the left shows the electrode design claimed by Applicants. The figure on the right is Fig. 4 from the Tomita et al. reference. Applicants claim, for example, "causing a first surface of a plasma sheath to shift into electrode openings of the top electrode," (claim 33) and "causing a first surface of a plasma sheath to shift into electrode openings of the top electrode, the first surface of the plasma sheath being proximate to the top electrode," (claim 37). Among other features, the gas feed holes (228) being smaller than the electrode openings 202b, allow that to occur. Contrast that to, among other features such as gas flow, plasma density, etc, the gas feed holes (55a) of the Tomita et al. electrode being *larger* than the electrode openings (55b). The fact that the electrode openings (55b) of Tomita et al. may be 0.6 mm, does not support that plasma formed adjacent to that electrode will inherently shift into the electrode openings as claimed by Applicants.

Applicants respectfully submit that Claims 33-35, 37-38, and 40 are patentable under 35 USC §103(a) over Tomita et al. in view of admitted prior art. Applicants respectfully request that these rejections be withdrawn.

Claims 14-21, 36, and 39 were rejected under 35 USC §103(a) as being unpatentable over Tomita et al. in view of Admitted prior art as applied above with respect to claims 33-35, 37-38, and 40, and further in view of Chang et al. (U.S. Patent No. 4,854,263). Applicants

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respectfully traverse this rejection, and request reconsideration. Applicants re-submit all previous argument.

As Applicants have argued, and supported by Declaration, the asserted modification of the Tomita et al. reference would render the Tomita et al. reference unsuitable for its intended purpose. That is, Tomita et al. teaches away from *allowing*, much less striking a plasma that is defined by a second plasma sheath surface area being greater than the first plasma sheath surface area (claims 14-21), or causing a first surface of a plasma sheath to shift into electrode openings of the top electrode (claims 36 and 39).

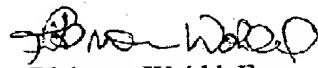
As described and illustrated above, the claimed electrode provides for and is designed to ensure that the plasma sheath shifts into the top electrode openings in order to achieve a plasma sheath surface area adjacent to the top electrode that is greater than the plasma sheath surface area adjacent to the wafer surface. The claimed electrode generates an increase in bias voltage directed at the wafer surface, and decreases the bias voltage directed at the top electrode. Neither the Tomita et al. reference nor the Chang et al. reference addresses bias voltage and designs to manipulate bias voltage since it would be antithetical to Tomita et al., and is just not an issue in Chang et al.

For at least the reasons that the asserted combination would render the reference unsuitable for its intended purpose, and that the asserted combination fails to teach or suggest all claim features as recited in Applicants' independent claims 14, 33, and 37, Applicants respectfully submit claims 14-21, 36, and 39 are patentable under 35 USC §103(a) over Tomita et al., in view of admitted prior art, and further in view of Chang et al. Applicants request that these rejections be withdrawn.

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In view of the foregoing, Applicants respectfully request reconsideration of claims 14-21 and 33-40. Applicants submit that all claims are in condition for allowance. Accordingly, a notice of allowance is respectfully requested. If Examiner has any questions concerning the present Amendment, the Examiner is kindly requested to contact the undersigned at (408) 749-6900, ext. 6905. If any additional fees are due in connection with filing this amendment, the Commissioner is also authorized to charge Deposit Account No. 50-0805 (Order No. LAM1P077A). A copy of the transmittal is enclosed for this purpose.

Respectfully submitted,
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